

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

### REMARKS

Claims 1-38 are in the case. In the Office Action, claims 1-3, and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,179,401 to Stephens, Jr. et al. Claims 8-11, 13-16, 18, and 20-21 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,637,866 to Cornell, et al. Claims 29-30 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,850,242 to Asaba. Claims 4-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over the '401 patent in view of U.S. Application No. 2004/0113988 to Silverbrook. Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over the '401 patent in view of the '866 patent. Claims 12 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over the '866 patent in view of the '988 application. Claims 31-32 were rejected under 35 U.S.C. §103(a) as being unpatentable over the '242 patent in view of the '866 patent. Claims 22-28 and 36-38 were indicated as being allowable. Claims 19 and 33-35 were objected to as being dependent on a rejected claims but were said to be allowable if rewritten. The rejections and objection of claims 1-21, 29-35 are respectfully traversed.

By the foregoing amendment, claims 8 and 38 are amended and claim 10 is cancelled. Support for the amendment to the claim 8 can be found in the specification on page 17, lines 3-10. Claim 38 is amended to correct inadvertent typographical errors. No new matter is entered into the case by the amendment.

Applicants greatly appreciate the correct indication that claims 22-28 and 36-38 are allowable.

A. Claims 1-3 and 7 are Patentably Distinguished Over the Cited Reference.

Claims 1-3 and 7 are directed to an ink jet printer containing a cartridge, a carriage for translating the cartridge across a print media, a microprocessor, and a combined ink fill tube and electrical connection cable connected between the cartridge and an off carriage ink supply.

As described in the specification on page 8, lines 4-15, the cable 32 (FIG. 1) not only provides ink flow for refilling the cartridge, the cable 32 also provides electrical traces for transmitting electrical signal to the cartridge. This element of the invention is not taught, disclosed or suggested by the '401 patent to Stephens, Jr. et al.

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

According to column 2, lines 3-10, the ink delivery system described in the '401 patent is "intermittently" connected to the print cartridge. "No tubing permanently connecting the on-carriage and off-carriage elements is needed." (col. 2, lines 7-10 of the '401 patent). By contrast, the combined ink fill tube and electrical connection cable of the claimed invention is connected to the cartridge to provide control of the carriage and printhead. An intermittent connection as called for in the '401 patent could not possibly provide control of the cartridge during printing even if the ink delivery system of the '401 patent was a combined ink fill tube and electrical connection cable, which it is not. The examiner is challenged to find any teaching or disclosure in the '401 patent that provides the combined fluid cable/electrical conduit of the invention.

Claim 2 calls for a refill tube connected between the carriage and the cartridge. No such tube is taught or disclosed in the '401 patent. The only refill tube described in the '401 patent is between the off-carriage ink reservoirs 80-86 and needle valve structures 160-166 rather than between the carriage and the cartridge. Accordingly, since the '401 patent fails to provide this element of the invention, the rejection of claim 2 is thus wholly untenable.

Claim 3 calls for a cartridge body containing a pressure regulator. According to the '401 patent, the pressure in the cartridge is "... governed by the distance offsetting the print cartridge and the off-carriage reservoir." See column 6, lines 41-47 of the '401 patent. No separate pressure regulator in the cartridge body is taught or disclosed in the '401 patent. Accordingly the rejection of claim 3 is untenable and should be withdrawn.

Claim 7 calls for a "shelf-less" heater chip as described on page 21, lines 9-13 of the specification. There is nothing in the '401 patent that teaches or discloses the "shelf-less" heater chip or the advantage obtained thereby. Applicants do not find anything in column 4 lines 23-25, or elsewhere in the '401 patent, relating to the "shelf-less" heater chip. Accordingly, the rejection of claim 7 is untenable and should be withdrawn.

Since the '401 patent fails to provide all of the elements of the claimed invention, the rejection of claims 1-3 and 7 over the '401 patent is wholly untenable and should be withdrawn.

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

B. Claims 8-9, 11, 13-16, 18, and 20-21 are Patentably Distinguished Over the Cited Reference.

In the rejection of claims 8-11, 13-16, 18, and 20-21, the '866 patent to Cornell et al. is cited. Claim 8 is amended to include an upper doped DLC layer and a lower doped DLC layer wherein the upper and lower doping materials are different. The '866 patent describes a DLC layer that has an upper undoped portion and a lower doped portion. There is nothing in the '866 patent that teaches or describes an upper doped DLC layer. Accordingly, amended claim 8 is patentable over the '866 patent. Reconsideration of the rejection of claim 8 is respectfully requested.

With regard to claim 9, applicants have reviewed the cited portion of the '866 patent and find there is nothing in the '866 patent that describes an upper silicon-doped DLC portion and a lower boron-doped DLC portion between opposed portions of the first conductive layer. Accordingly, the rejection of claim 9 over the '866 patent is untenable and should be withdrawn.

Claims 11 and 13 depend from claim 8 and are patentable over the '866 patent for the same reasons claim 8 is patentable over the '866 patent. Reconsideration of the rejection of claims 11-13 is respectfully requested.

Claim 14 provides a DLC layer that is deposited on a resistive layer according to FIGS. 10-12 wherein at least a portion of the DLC layer is doped to provide improved adhesion between the first conductive layer deposited on the resistive layer and a second insulating layer. By contrast, there is nothing in the '866 patent with regard to providing a doped DLC layer to improve adhesion between the metal layer 22 and the insulating layer 38. Only the lower portion 24 of the DLC layer is doped and this portion is not disposed between the metal layer 22 and the insulating layer 38. Accordingly, the rejection of claim 14 is wholly untenable and should be withdrawn.

Claim 15 calls for a DLC protective layer doped with titanium. Applicants have reviewed the cited portion of the '866 patent and find there is nothing in the '866 patent with regard to doping the DLC layer with titanium. The only reference in the '866 patent to titanium is with regard to a smoothing layer 32 which is not said to be a doped DLC layer. Accordingly, the rejection of claim 15 over the '866 patent is untenable and should be withdrawn.

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

Claim 16 calls for a lower silicon doped DLC layer. Applicants have reviewed the cited portion of the '866 patent and find there is nothing in the '866 patent that teaches or discloses doping the DLC layer with silicon. Accordingly, the rejection of claim 16 over the '866 patent is wholly untenable and should be withdrawn.

Claim 18 calls for a second insulating layer made of DLC between the first conductive layer and a second conductive layer having a thickness ranging from about 1000 to about 3000 Angstroms. Applicants have reviewed the cited portions of the '866 patent and find there is nothing in the '866 patent with regard to a second insulating layer having a thickness of less than 5000 Angstroms or a second insulating layer made of DLC. See column 6, lines 6-13 of the '866 patent. Accordingly, the rejection of claim 18 is wholly untenable and should be withdrawn.

Claim 20 calls for a semiconductor substrate having a thickness ranging from about 10 to less than about 500 microns. Applicants have reviewed the cited portions of the '866 patent and find there is nothing in the '866 patent with regard to the thickness of the silicon substrate. Accordingly, reconsideration and allowance of claim 20 is respectfully requested.

Claim 21 calls for a non-epitaxial semiconductor substrate. Applicants have reviewed the cited portions of the '866 patent and find there is nothing in the '866 patent with regard to use of a non-epitaxial silicon substrate. Accordingly, reconsideration and allowance of claim 21 is respectfully requested.

In view of the amendment to claim 8 and the foregoing remarks, applicants believe claims 8-9, 11, 13-16, 18, and 20-21 are patentably distinguished over the '866 patent. Reconsideration and allowance of claims 8-11, 13-16, 18, and 20-21 are respectfully requested.

C. Claims 29-30 are Patentably Distinguished Over the Cited Reference.

In the rejection of claims 29 and 30, the '242 patent to Asaba is cited. Claim 29 relates to a semiconductor chip containing heater resistors and FET transistors for driving the heater resistors. A CMOS logic device is coupled to the FET's and heater resistors. The gate oxide layer for the gates of the FET transistors has a thickness greater than a gate oxide layer for the gates of the CMOS logic devices. Applicants have reviewed the cited portions of the '242 patent and find there is absolutely nothing in the '242 patent with regard to use of gates for FET

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

devices and CMOS devices wherein the gate oxides for the gates have different thicknesses. Accordingly, because the '242 patent fails to provide all of the limitations of claim 29, the rejection of claim 29 over the '242 patent should be reconsidered and withdrawn.

Claim 30 calls for the chip having fuses as memory elements. Applicants have reviewed the cited portions of the '242 patent and find there is absolutely nothing in the '242 patent with regard to fuses or the use of fuses as memory elements. Accordingly, because the '242 patent fails to provide all of the limitations of claim 30, the rejection of claim 30 over the '242 patent should be reconsidered and withdrawn.

D. Claims 4-5 are Patentably Distinguished Over the Cited References.

In the rejection of claims 4-5, the '242 patent to Asaba is cited. Claim 4 relates to a pressure regulator made of gas filled microcapsules. Claim 5 relates to ejecting a mass of ink ranging from about 0.2 to about 1 nanogram. Claims 4 and 5 depend on claim 1 and are patentable over the '401 patent for the same reasons claim 1 is patentable over this reference. The examiner admits that the '401 patent does not describe gas filled microcapsules or ejection of an ink mass ranging from about 0.2 to about 1 nanogram.

In order to cure the deficiencies of the '401 patent to provide all of the elements of claims 4 and 5, the examiner combines the '401 patent with the '988 application to Silverbrook. However, the '988 application fails to provide the missing elements of the claimed invention. Specifically, the '988 application fails to teach, suggest or disclose gas-filled microcapsules called for in claim 4. Applicants have reviewed the cited portion of the '988 application and find that it relates to the gas bubble used to eject ink rather than gas filled microcapsules used as a pressure regulator in the cartridge. Likewise there is nothing in the '988 application with regard to the combined fill tube and electrical connection cable. Accordingly, the rejection of claim 4 over the combined '401 patent and '988 application is untenable and should be withdrawn.

Claim 5 depends on claim 1 and is patentable over the '401 patent combined with the '988 patent for the same reasons claim 1 is patentable over these references. As set forth above, the '988 patent fails to cure the deficiencies of the '401 patent to provide the combined fill tube and electrical connection cable.

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

Reconsideration and withdrawal of the rejection of claims 4-5 is believed in order and is respectfully requested.

E. Claim 6 is Patentably Distinguished over the Cited References.

Claim 6 depends from claim 1 and calls for an ultra-thin semiconductor material having a thickness ranging from about 10 to less than about 500 microns. As set forth in section B above, the '866 patent fails to teach, suggest or disclose a semiconductor substrate thickness, much less a thickness ranging from about 10 to less than about 500 microns. The examiner correctly admits that the '401 patent fails to provide the limitation of claim 6. Accordingly, combining the '401 patent with the '866 patent also fails to provide all of the limitations of claim 6. Claim 6 is also patentable over the '401 patent for the same reason claim 1 is patentable over this reference.

F. Claims 12 and 17 are Patentably Distinguished Over the Cited References.

In the rejection of claims 12 and 17, the '866 patent in view of the '988 application are cited. Claims 12 and 17 depend from claims 8 and 14 and are patentable over the '866 patent for the same reasons claims 8 and 14 are patentable over this reference. Furthermore, the '988 application does not teach suggest or disclose a doped DLC layer. Accordingly, combining the '988 application with the '866 patent fails to provide all of the elements of the claimed invention. Reconsideration and allowance of claims 12 and 17 are respectfully requested.

G. Claims 31-32 are Patentably Distinguished Over the Cited References.

In the rejection of claims 31-32, the '242 patent in view of the '866 patent are cited. Claims 31 and 32 depend from claims 29 and 30 and are patentable over the '242 patent for the same reasons claim 29 is patentable over the '242 patent as set forth above in section C above. Claims 31 and 32 relate to passivation materials deposited on the fuses used as memory elements. As described above in section C, the '242 patent fails to teach, suggest or disclose fuses used as memory elements. Likewise, the '866 patent contains nothing with regard to the use of fuses as memory elements. Accordingly, combining the '242 patent with the '866 patent fails to provide all of the elements of the claimed invention. In view of the deficiencies of the

Application No. 10/621,018  
Docket No. 2001-0756.00  
(56620.US/4665.0)

combined references to provide all of the elements of the invention, the rejection of claims 31-32 is wholly untenable and should be withdrawn.

H. Claims 19 and 33-35 are Allowable Over the Art of Record.

Claim 19 depends from claim 14 and are patentable over the art of record for the same reasons claim 14 is patentable. Likewise, claims 33-35 depend from claim 29 and are patentable over the art of record for the same reasons claim 29 is patentable. Withdrawal of the objection to claims 19 and 33-35 is believed in order and is respectfully requested.

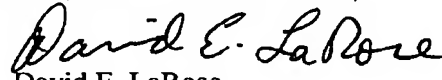
In view of the amendment of claims 8 and 38, the cancellation of claim 10, and the foregoing remarks, it is believed that claims 1-9 and 11-38 are now in condition for immediate allowance. Allowance of claims 1-9 and 11-38 is respectfully requested.

In the event this response is not timely filed, Applicants hereby petition for the appropriate extension of time and request that the fee for the extension along with any other fees which may be due with respect to this paper be charged to our Deposit Account 12 2355.

Respectfully submitted,

LUEDEKA, NEELY & GRAHAM, P. C.

By:

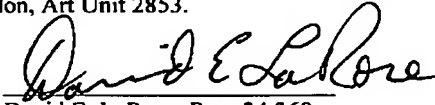
  
David E. LaRose  
Reg. No. 34,369

November 24, 2004  
P. O. Box 1871  
Knoxville, TN 37901  
865-546-4305

\*\*\*CERTIFICATE OF FACSIMILE TRANSMISSION\*\*\*

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office at 703-872-9306, Attn: Examiner Raquel Yvette Gordon, Art Unit 2853.

on November 24, 2004

  
David E. LaRose, Reg. 34,369